Bulletin No. 9. April, 1914.

Commonwealth of Pennsylvania

DEPARTMENT OF FORESTRY

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in Cooperation With the
Forest Service, U. S. Department of Agriculture
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Wood-Using Industries

OF PENNSYLVANIA

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United States Forest Service,
1912.

HARRISBURG, PA.
WM. STANLEY RAY, STATE PRINTER
1914

HANDLES.

Other states take precedence over Pennsylvania in the quantity of wood annually consumed in the manufacture of handles, but it is probable that none surpasses it in the different kinds of handles made. The principal ones reported have been listed and the woods from which they are made arranged in order of quantity as follows:

Axe Handles.
White ash.
Hickory.
White oak.

Brick Trowel Handles.
Dogwood.
Persimmon.

Broom Handles.
Basswood.
Beech.
Sugar maple.
Birch.

Butcher Knife Handles.
Birch.
Beech.
Sugar maple.

Cant Hook Handles.
Sugar maple.
Hornbeam.
Hickory.

Carrying Poles.
Hornbeam.
Hickory.

Chisel Handles.
Hickory.

Coal Pick Handles.
White oak.
Sugar maple.
White ash.
Sweet birch.
Hickory.

Concrete Rammer Handles
Hickory.
Hornbeam.

Crosscut Saw Handles.
Beech.
Sugar maple.
Hickory.

Door Knobs.
Sugar maple.

D-Fork Handles.
White ash.

D-Shovel Handles.
White ash.
Sugar maple.

Fork Handles.
White ash.
Cherry.

Grab Maul Handles.
Hornbeam.
Hickory.

Hammer Handles.
White ash.
Hickory.

Hatchet Handles.
Hickory.
White ash.

Hay Knife Handles.
White ash.

Hoe Handles.
White ash.
Sugar maple.
Beech.
Birch.

Instrument Handles.
Rosewood.
Ebony.

Jack Handles.
Hickory.
Sugar maple.

Mallet Handles.
Dogwood.
Hornbeam.
Hickory.

Maul Handles.
Hickory.

Mop Handles.
Beech.
Sugar maple.
Birch.
Basswood.

Peavey Handles.
Hornbeam.
Hickory.

Pick Handles.
Hickory.
White oak.
Hornbeam.

Pipe Wrench Handles.
Basswood.

Plastering Trowel Handles.
Basswood.

Pole Brush Handles.
Basswood.
White ash.
Shortleaf pine.

Rake Handles.
Sugar maple.
Beech.
Birch.
Ash.

Saddler's Tool Handles.
Black walnut.

Sad Iron Handles.
Red gum.

Sand Rammer Handles.
Hickory.
Hornbeam.

Saw Frames.
Red Oak.
Birch.
Sugar maple.

Saw Handles.
Red gum.
Sweet birch.
Applewood.
Beech.

Spade Handles.
White ash.
Black ash.

Spud Handles.
Hickory.
Hornbeam.
Sugar maple.
Beech.

Stomper Handles.
Hornbeam.
Hickory.

Street Brooms.
Beech.
Sugar maple.
Hickory.

Track Tool Handles.
White oak.
Hickory.
Sugar maple.
White ash.

Hickory is unquestionably the best wood used for long-handle tools, including the maul, axe, striking hammer, sledge, and track tools used on railroads for construction work and for maintenance of way. Besides exceptional strength, this wood possesses other important qualities for handle material,—weight, stiffness, shock-resisting ability, and susceptibility to wear smooth by use. Manufacturers of this class of handles usually specialize in this line, since the processes of manufacture and the machinery required are distinct from those employed in making other classes. Hickory is becoming scarcer each year, and this fact has induced a number of northern handle makers to move southward nearer to the source of the largest supply. Not a few firms, however, continue to maintain factories in the north and to ship billets, bolts, and rough-turned handle stock from the south to the north as far as Connecticut and New Hampshire.

It is interesting to note from the following table that the Pennsylvania hickory handle manufacturers procure 66 per cent. of their raw material from the State. It would be well for farmers and timber owners in Pennsylvania who own stands of hickory to understand the increasing demand for the wood for handles and that second-growth hickory is preferred. This tree is not a rapid grower but it is not so slow as many other trees and it will soon prove a good investment to preserve stands of second-growth hickory to aid their development, and to cut the timber only as it becomes large enough for handle bolts. The list given below shows the kinds of wood which are being tried as substitutes for hickory in handle making, white oak, cow oak, swamp oak, sugar maple, hornbeam, and ash being the principal ones. For coal-pick handles these woods are suitable and most largely used, there being less strain as to strength and shock-resisting than if used for the more strenuous work of the pick, axe, and maul.

The manufacture of fork and garden tool handles is another distinct class of this industry. What hickory is for the axe, pick, and sledge, white ash is to this class, namely, the pitch-fork and hay-fork, the long handle and D-shovel, and the hoe, rake, etc. Stiffness, toughness, and strength without excessive weight are the properties which commend ash for this use. It is surprising that the handle manufacturers demanding this wood procure only 58 per cent. of their requirements from State-grown woods. This condition offers another opportunity to timber owners to encourage the growing of ash for handle stock, to meet the demand of the increasing home market. In forest management ash is an important tree. It is a fairly rapid grower and is not particular as to situation, as are many other trees.

Other woods serve with ash for meeting the demand for this class of handles, but they are used in considerably smaller quantities. In the order of their importance, they are sugar maple, beech, birch, and cherry. In other states elm, sycamore, and soft maple are included.

More wood in Pennsylvania is required for broom and mop handles than for any other class, and like hickory handles, the manufacturer makes no other kinds. The maples, chiefly sugar maple, the birches and beech because they turn well and wear smooth in use, and to a less extent, basswood, red gum, ash, and sycamore, are the broom and mop handle woods; and all of them are reported being used in Pennsylvania. Sugar maple is preferred and only a few years ago was most used. Its demand for other uses at higher prices is probably the chief cause for bringing birch into first place. High grade material is required for broom handles and squares are usually cut direct from the log, the less desirable being put into mop handles. Mop handle squares were found being bolted in Pennsylvania from slabs and edgings of sawmills cutting beech, birch, and maple.

For handles where weight is not an objection and strength is the foremost consideration, hornbeam or ironwood has been found very satisfactory. Cant hook and peavey handles, stomper and rammer handles are examples.

Applewood is very well adapted for handsaw handles, being hard, sufficiently strong, of uniform texture, and susceptible of high polish. The attractive uniform color has caused it to become the principal wood for better grades of handles. Red gum, cherry, and sweet birch have proved satisfactory for saw handles, but more because they can be finished to resemble applewood closely than because of any other special quality which they possess. Beech furnishes the material for cheaper grades. Its color is against it and also the fact that it is not capable of high polish, but its toughness and greater strength and ability to wear smooth probably make it nearly equal to applewood. Other woods used for saw handles but not reported in Pennsylvania are mahogany and black walnut. Saw frames for buck saws are of red oak, birch, and maple and handles of crosscut saws are of sugar maple, hickory, and beech.

The bricklayers' trowels have handles of dogwood and persimmon. These woods are dense in structure and among the hardest domestic woods and therefore best stand the wear for use as a hammer for imbedding the brick into mortar after placing it. The plaster trowels are made of basswood. Being porous this wood absorbs the moisture from the wet hand of the mechanic and it is claimed does not slime. In the New England states popple or aspen is used for the same reason.

Table 59.—Wood for Handles, year ending June, 1912.

Kind of Wood.	Quantity.		Average cost per 1,000 ft. at factory.	Total cost f. o. b. factory.	Grown in Pennsylvania.	Grown Out of Pennsylvania.
	Feet b. m.	Per cent.			Feet b. m.	Feet b. m.
Hickory,	3,973,350	36.07	$31 97	$127,045	2,599,300	1,374,050
Sugar maple,	2,307,850	20.95	19 02	43,897	1,727,700	580,150
Ash,	1,969,750	17.88	28 45	56,032	1,130,750	839,000
Beech,	1,752,300	15.91	17 31	30,412	1,302,800	449,500
Hornbeam,	415,500	3.77	49 53	20,580	315,500	100,000
Birch,	207,750	1.89	18 13	3,766	205,250	2,500
Red gum,	195,000	1.77	29 38	5,730	....	195,000
White oak,	59,000	.54	27 42	1,618	59,000	....
Applewood,	50,000	.45	40 00	2,000	25,000	25,000
Basswood,	41,200	.38	29 73	1,225	41,200	....
Red oak,	15,000	.14	17 50	263	15,000	....
Shortleaf pine,	12,000	.11	30 00	360	....	12,000
Cherry (black	7,500	.07	50 00	375	2,500	5,000
Persimmon,	7,000	.06	54 00	378	....	7,000
Black walnut,	1,050	.01	81 90	86	1,050	....
Ebony,	327	*	305 81	100	....	327
Dogwood,	230	*	67 57	16	....	230
Rosewood,	100	*	360 00	36	....	100
Total,	11,014,907	100.00	$26 68	$293,919	7,425,050	3,589,857

*Less than 1-100 of 1 per cent.